

MISSION OPERATIONS DIRECTORATE FLIGHT DIRECTOR OFFICE



STS-104/STAGE 7A/ISS INCREMENT OPERATIONS

FLIGHT READINESS REVIEW

June 28, 2001

DA8/R. E. Castle

STS-104/Stage 7A/Increment Operations

- STS-104 Mission Operations
 - Mission Objectives/Firsts
 - Network
 - USA Flight Operations
 - MOD
- Flight Rules
- Standard Topics
 - STS-104/7A Ascent Performance
- Special Topics
 - Dependencies on C&DH System
 - Airlock Unberth/Install Summary
 - HPGT Unberth/Handoff Summary
 - Operational Readiness to Reduce Risk to MSD Failures
 - Airlock Go/No Go
- Open Issues Work
- Certification
- Readiness Statement

STS-104/7A Mission Objectives/Firsts

- Objectives
 - Install joint airlock
 - Install high-pressure gas tanks
 - Activate airlock
 - Demonstrate ISS joint airlock EMU EVA capability
 - Transfer critical ISS crew
- Significant Mission Firsts
 - Use of SSRMS to continue assembly sequence
 - Use of joint airlock for EVA
 - Use of 2 hour exercise EVA prebreathe protocol
 - Block II SSME in left engine position (no change to ops procedures/rules)

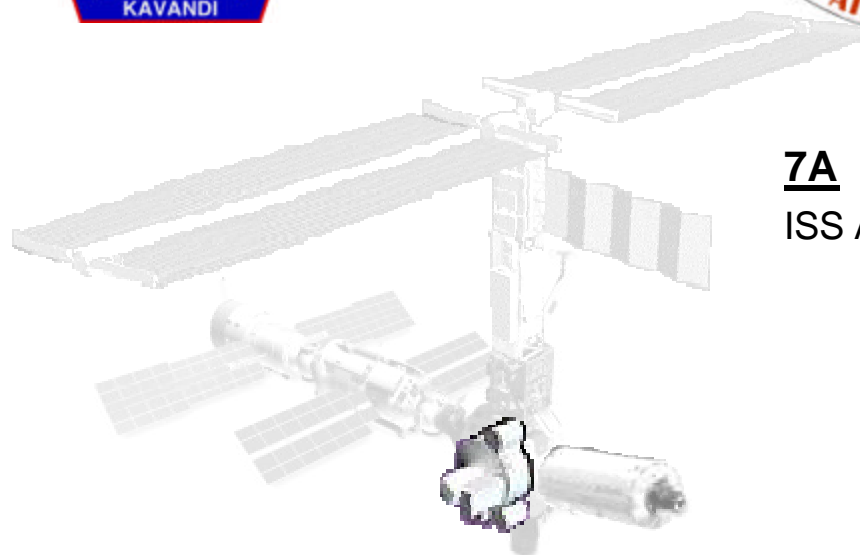


Space Operations Management Office



STS-104 ISS 7A Flight Readiness Review

Networks



7A
ISS Airlock

Agenda

- Integrated Network Activity
- Other SN Supported Launches
- STS-100/6A Anomalies
- Significant Changes
- Configuration Management

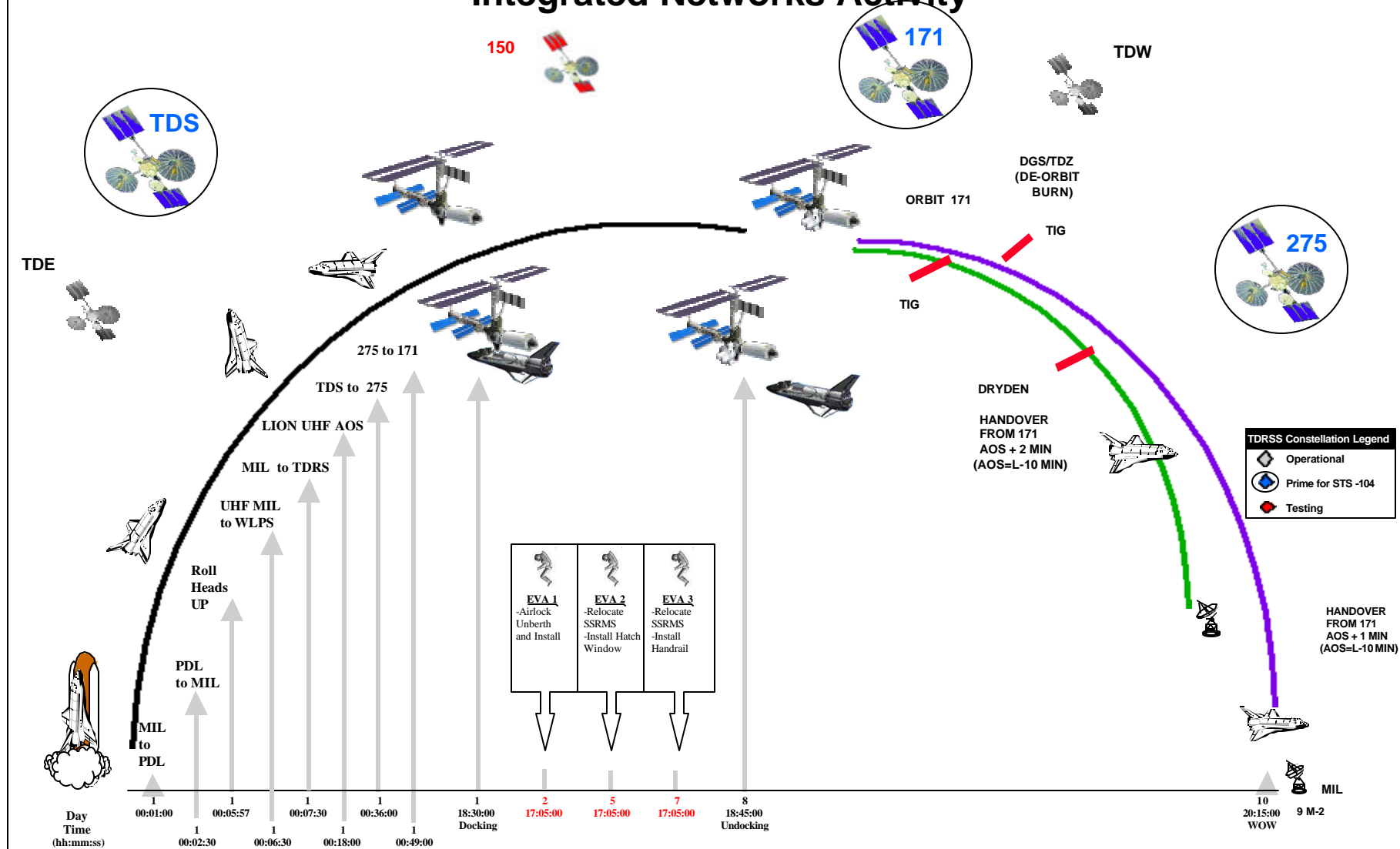
Ted Sobchak
Network Director
GSFC Code 450
June 28, 2001



STS-104/ISS 7A FRR Mission Services



Integrated Networks Activity



STS-104/7A FRR/MOD

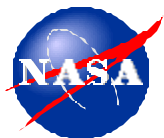


STS-104/ISS 7A FRR Mission Services



Other Network Supported Launches

- **There are three Network supported launches scheduled during the STS-104 mission timeframe**
 - **Atlas/GOES-M - 15 JUL.**
 - **SeaLaunch 8/GALAXY - NET 15 JUL.**
 - **Titan IV/B-31 - 21 JUL.**
- **No conflict with Network resources.**



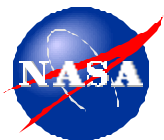
STS-104/ISS 7A FRR Mission Services



STS-100/6A Anomalies

- **Launch - PDL Line Cut**
 - A line cut in Florida effected 304 T-3 bundles (approximately 8500 T-1's)
 - The PDL T-1 was automatically restored within 10 mins of line cut.
 - Continued intermittent hits experienced due to AT&T manual restoration of other lines.
 - AT&T advised of problem & stopped manual restorations. Problem cleared.

- **Landing - Dryden**
 - Dropouts in telemetry were received at JSC and GSFC
 - Two problems identified:
 - **Operator Error (GSFC) – Incorrect execution of established procedure for West Coast Landings impacted 5 minutes of support**
 - Landing count reviewed and procedure refined
 - **Intermittent data drops in telemetry with Orbiter Ranging “ON”**
 - JSC plans to operate Orbiter with Ranging “OFF” for sites other than MIL



STS-104/ISS 7A FRR Mission Services



Significant Changes

- **Space Network**
 - » Installed “OR” Gate to automate real-time ISS 50 Mbps routing
- **Ground Network**
 - **MIL/PDL**
 - » Orbiter will have Ranging disabled by Stored Program Command during support other than MIL.
 - » Subsystem Controllers and RCI workstation software changes closed 18 DR's
 - » Full regression and acceptance testing performed
- **NISN**
 - Voice loop compression from 32KB TO 24KB is scheduled for STS-104
 - » A set of 21 voice loops have been compressed and configured.
 - » None of the circuits are mission critical and can be uncompressed if necessary
 - Russian Circuits were transitioned from MCI to Global1 on May 3.
 - Terminating Current ISS Video Distribution (GSTAR4) June 30.
 - » Critical SSRMS will share Transponder 5 with NASA TV



STS-104/ISS 7A FRR Mission Services



Configuration Management

- **Integrated Network freezes are imposed prelaunch**
 - **Freeze Exemptions must be approved prior to implementation**
- **Critical Periods are identified premission by JSC and documented in a “Mission Critical Periods Interim Support Instruction (ISI)”**
 - **Maintenance and testing restrictions are imposed during Critical Periods**
- **Standard Critical Periods include:**
 - **Launch**
 - **Dock**
 - **EVA**
 - **Reboost**
 - **Landing**
 - **Undock**
 - **Assembly Tasks**



Space Operations Management Office



Certificate of Space Operations Management Office Readiness

Pending completion of flight readiness preparations, remaining standard work and closure of all action items, SOMO dedicated elements and all CSOC resources are ready to support the STS-104/10th ISS Flight (7A) - Airlock

(Original signed by)

S. C. Newberry
Director, Space Operations Management Office
Johnson Space Center

Date

(Original signed by)

G. Morse
Manager, Space Operations Services
Johnson Space Center

Date

(Original signed by)

D. Tighe
CSOC Program Manager

Date

Presenter:

R. Gest

Organization/Date:

Flt Ops/Date:06/28/01

STS 104/ISS 7A Flight Readiness Review 6/28/01

USA Flight Operations



AGENDA

Presenter:

R. Gest

Organization/Date:

Flt Ops/Date:06/28/01

- Requirements Compliance
- Facilities Readiness
- Flight Design Readiness
- Flight Preparation Product Readiness
- Training & Certification
- Flight Control Readiness
- Out of Family - None
- Special Topics - None
- CoFR Statement

REQUIREMENTS COMPLIANCE

Presenter:

R. Gest

Organization/Date:

Flt Ops/Date:06/28/01

- Requirements
 - SSP Requirements Documentation Summary
 - Flight Preparation Requirements Book (FPRB)
 - Generic - CO
 - Flight Specific - 104MEBASE-AQ
 - ISS Requirements Documentation Summary
 - IIDP, 2-FIN-E
 - Waivers & Exceptions
 - None
 - Significant non standard open work
 - None

FACILITIES READINESS

Presenter:

R. Gest

Organization/Date:

Flt Ops/Date:06/28/01

- Mission Control Center (MCC)
 - Software changes since STS-100
 - MCC platform system software release – Io 2.2
 - Released 4/12/01
 - Continuous Operations 05/17/01
 - MOC Software version –104B1A
 - MIDDS Application S/W version – 13.5
 - Significant Hardware Changes
 - 268 workstations and servers replaced
 - Significant Anomalies – none

FACILITIES READINESS

Presenter:

R. Gest

Organization/Date:

Flt Ops/Date:06/28/01

- Mission Control Center (MCC) - cont'd
 - Significant Anomalies – All dispositioned for flight
 - ISS Ku-band Frame Synch Loss in the FEP
 - Increased number of Ku-band frame synch losses with out subsequent automatic re-synchronization
 - Impact – Loss of ISS video and OCA link until manual re-synch is performed – 20 min max
 - Telemetry, commanding, and voice are unaffected
 - Ops note written to configure a second FEP as hot backup – reduces recovery time to 3 or 4 minutes
 - No operational impacts to STS-104/7A
 - Command server out of sync with MSFC
 - Occurred twice during STS-100 – 3 minute duration
 - Impact - MSCF unable to send commands until synchronization is recovered – 30 min impact worst case
 - MSFC does not perform time critical commanding
 - Ops note written to perform manual resynch if required and to capture data if out of sync condition reoccurs
 - No operational impacts to STS-104/7A

FACILITIES READINESS

Presenter:

R. Gest

Organization/Date:

Flt Ops/Date:06/28/01

- Integrated Planning System (IPS)
 - Significant platform software changes since last FRR
 - IPS Release 10.3
 - Significant Hardware Changes
 - None
 - Significant Anomalies - None
 - Significant non standard open work - None

FLIGHT DESIGN READINESS

Presenter:

R. Gest

Organization/Date:

Flt Ops/Date:06/28/01

- Design meets all NASA requirements (FDRD, FRD, etc.)
 - Limit Exceedances - none
 - Entry thermal analysis complete - no violations
- All anomalies dispositioned
 - Significant Anomaly Reports - none
- Significant mission firsts - none
- Significant non standard open work - none

FLIGHT PREP PRODUCT READINESS

Presenter:

R. Gest

Organization/Date:

Flt Ops/Date:06/28/01

- Products
 - All Shuttle Recon ARs & PARs have been closed
 - Shuttle Flight Design I-load patches:
 - Updates primarily due to launch date change and mass properties updates
 - Shuttle consumables products - delivered or on schedule
 - Significant non standard open work - none
- Procedures
 - FDF and ODF Status – standard open work remains
 - Crew review on 5/24 and ship 7/6

TRAINING & CERTIFICATION

Presenter:

R. Gest

Organization/Date:

Flt Ops/Date:06/28/01

- Crew Training
 - Flight specific Shuttle Crew Training Plan: All training has been or is scheduled to be completed prior to launch
 - Second flight of one cycle to flight generic ISS ascent/entry training
- Integrated Training - on schedule
- All Shuttle instructor and SMTF facility operations personnel are trained and certified

FLIGHT CONTROL READINESS

Presenter:

R. Gest

Organization/Date:

Flt Ops/Date:06/28/01

- Real-time support software status
 - All user applications that support real-time Ops are certified and incorporated into the Ops baseline
 - Significant Anomaly Reports - none
 - Significant non standard open work - none
- Personnel
 - All USA accountable flight controllers are certified for flight
 - Significant non-standard open work - none

STS-104/ISS 7A Certification of Flight Readiness

Presenter:

R. Gest

Organization/Date:

Flt Ops/Date:06/28/01

- The USA Flight Operations FRR, NASA MOD FRR, and USA SFOC Pre-FRR have been completed
- All Contractor Accountable Functions (CAF) have been completed, or are scheduled for completion, in accordance with NASA requirements and the applicable portions of the Space Flight Operations contract Flight Preparation Process Plan (NSTS 08117, section 8.5.18 and appendix "R").
- All required products have been or are scheduled to be delivered per requirements.
- All Facilities have been configured and are ready for mission support.
- All CAF personnel are trained and certified or will be trained and certified prior to flight.
- Flight crew has been trained.
- There are no open issues.
- Pending completion of the defined open work.

**USA FLIGHT OPERATIONS IS READY
TO SUPPORT THE STS 104/ISS 7A MISSION**



L. S. Bourgeois
Director Mission Operations, Flight Operations



STS-104/Stage 7A Mission Operations

Significant Items

- Shuttle Flight Software
 - No significant changes
- Station Flight Software
 - Discussed under Special Topic
- Flight Design
 - ISS Flight Mechanics Design is complete and meets all requirements
 - Proper definition, insight, and review of shuttle flight design confirms ready for flight
 - Mission objectives have been scheduled reflecting FD 3 rendezvous
 - Prop and non-prop consumables support the mission (11+1+2)
 - Prop margins: Aft: ~287 lb; Fwd: ~64 lbs, OMS ~2600

STS-104/Stage 7A Mission Operations

Significant Items

- Procedures: FDF and SODF
 - Shuttle – No significant open work
 - Station
 - No significant open work
 - MSFC Payload Operations Data File – no new procedures on 7A
 - RODF – None being launched on 7A
 - Work continues with the Russians related to timeliness of Emergency Procedure updates and payload procedure content
- JOIP
 - US only flight specific completed dated February 12, 2001
 - Joint US/Russian
 - No 7A or Expedition 2 specific updates

STS-104/Stage 7A Mission Operations – Houston and Moscow Support Groups

- FGB Data Book, SM Data Book, Soyuz/Progress Data Book, and HSG Ops Handbook are ready to support
- Russian Display Reference Guides – FGB and SM ready to support
- HSG staffing plan similar to previous missions with ops and consultant team.
- MCC Consultant Group
 - Staff of seven in place and supported last part of 6A

STS-104/Stage 7A Mission Operations Crew and Flight Controller Training

- All shuttle crew training is on schedule to be complete
- EVA NBL training complete
- Remaining STS-104 integrated team training
 - A/E: one entry, one ascent
- ISS Expedition 2 Crew Training
 - Remaining SSRMS on-board training to be scheduled
- Shuttle - All Flight Controller certifications are on schedule to be completed
- ISS Flight Controller Staffing
 - Four Robotics teams certified
 - All other ISS disciplines have 7-10 teams certified

STS-104/7A Ascent Performance

- | | |
|----------------------------------|--|
| • INSERTION ALTITUDE/INCLINATION | 122 NM / 51.6 DEG |
| • FIRST STAGE DESIGN CRITERIA | DOLILU II / OPS HIGH Q |
| • LAUNCH WINDOW OPEN (10 MIN) | July 12, 2001, 09:02:28 GMT
05:02:28 EDT |
| • LAUNCH WINDOW CLOSE (10 MIN) | July 12, 2001, 09:12:28 GMT
05:012:28 EDT |
| • LANDING TIME (KSC) | July 23, 2001, 04:56 GMT
00:56 EDT |
| • I-LOAD DESIGN APM | 1761 LBS * |
| • FRR ASSESSMENT APM | 2323 LBS * |

LAUNCH HOLD INSIDE OF DRAINBACK LIMITED BY SSME TEMPERATURE
START BOX LIMIT, NOT LIMITED BY ASCENT PERFORMANCE

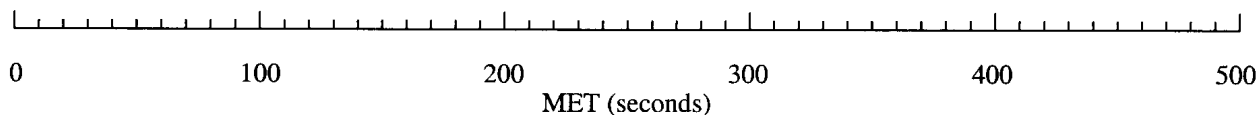
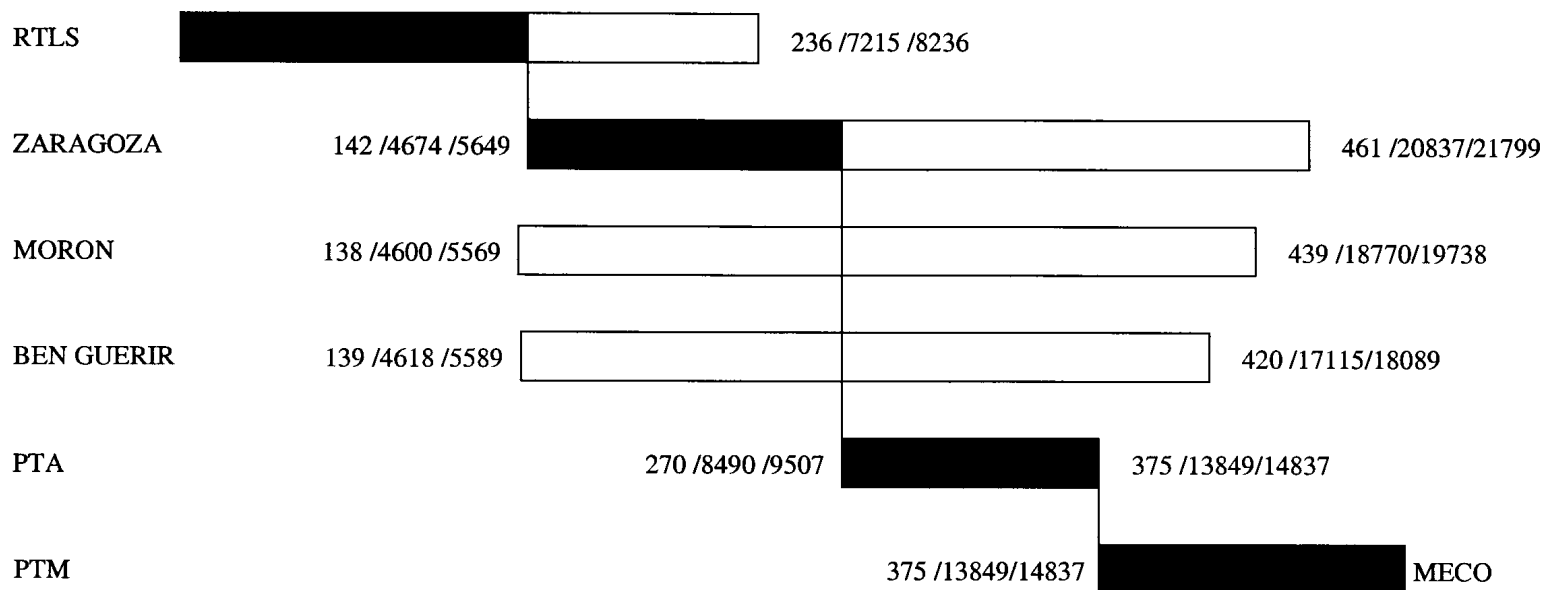
* 5 minute window, no DOL dispersion reduction

Abort Regions Chart

STS-104

TDDP: FRRAF104(004)
Ascent Performance Margin: 2317.0 lbs
Ascent Intact Engineer: graves
Date: Wed Apr 25 12:23:53 CDT 2001

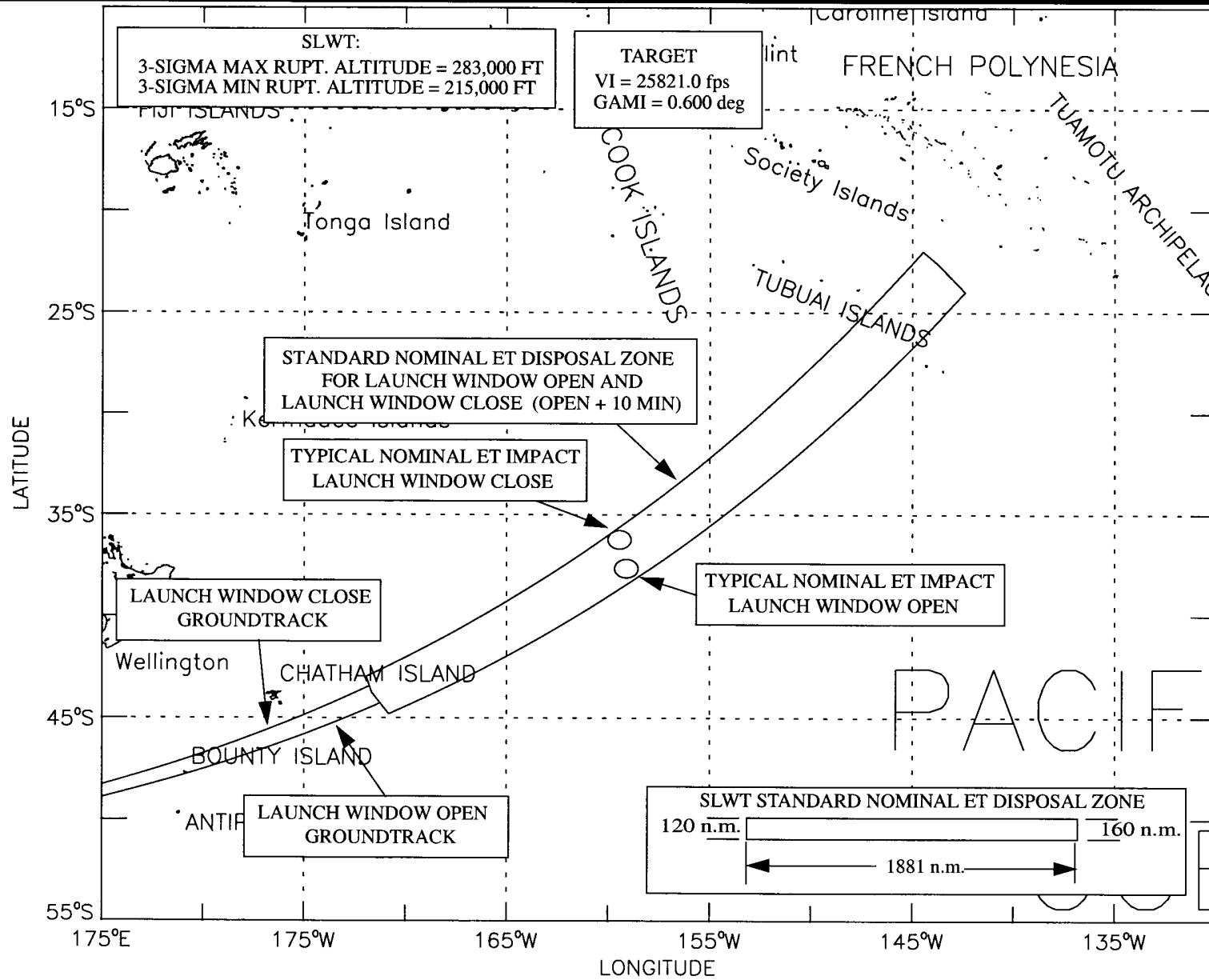
LEGEND		
E.O. Time (sec)/Rel. Velocity (fps)/Inert. Velocity (fps)		



Last RTLS boundary based on Performance. The late ZZA boundary is based on the abort initiation Inertial Velocity of 23k fps. The late MRN boundary is based on the Beta angle of +/- 50.0 degrees. The late BEN boundary is based on Performance. Due to inherent assumptions made in its creation, this chart may not accurately depict DOL conditions and intact abort boundary times. All data presented on this chart is at the opening of a 5 minute window.

Nominal ET Impact Area

STS-104



STS-104/7A FRR/MOD

STS-104/7A Significant Flight Rules

- PLB Control Bus IFM: Verified in SAIL, therefore no early mission termination for CB failure which impacts PLBD redundancy.
- LCC driven by ISS: Redundant power/avionics for CBM and SSRMS
- Shuttle Launch Window
 - Reflight required without at least 2 EVAs, FD2 protection requires 2 additional OMS burns due to the current ISS altitude.
 - Therefore, delete FD2 rendezvous phasing protection in OMS-2 targeting.
- Shuttle EVA rules have been updated to ISS systems and are in Volume B, with the following in the 7A annex:
 - EVA prebreathe protocols (exercise, 10.2 and 14.7)
 - Airlock go/no-go for 10.2 psi and EVA
 - EMU Decontamination
 - Same technical intent as the Shuttle All Flights rules.
 - A/L dilution suffices for all 7 day SMACs.
 - Antenna keep-out-zones updated

STS-104/7A Significant Flight Rules

- SSRMS loads capabilities
 - Attitude control constraints have been updated for loaded and unloaded SSRMS operations, with the bottom line:
 - CMG allowed throughout, loaded and unloaded.
 - Progressively more constrained use of ISS jets, VRCS and PRCS.
 - CSA reconfirmed capability for the static SSRMS to support attitude control, docking, undocking and VRCS reboost with the Joint A/L on the arm.
- A/L and HPGT thermal constraints and contingency response rules:
 - Single string A/L heaters in PLB
 - Actions spelled out for heaters fail-on case (same heaters as Lab on 5A)
 - Will connect LTA jumpers if required with A/L still on SSRMS
 - Protect EVA time to perform EVA “GCA” of airlock on EVA-1
- Redundancy requirements for SSRMS and CBM ops

Special Topic – C&DH and SSRMS Readiness Dependencies on C&DH System

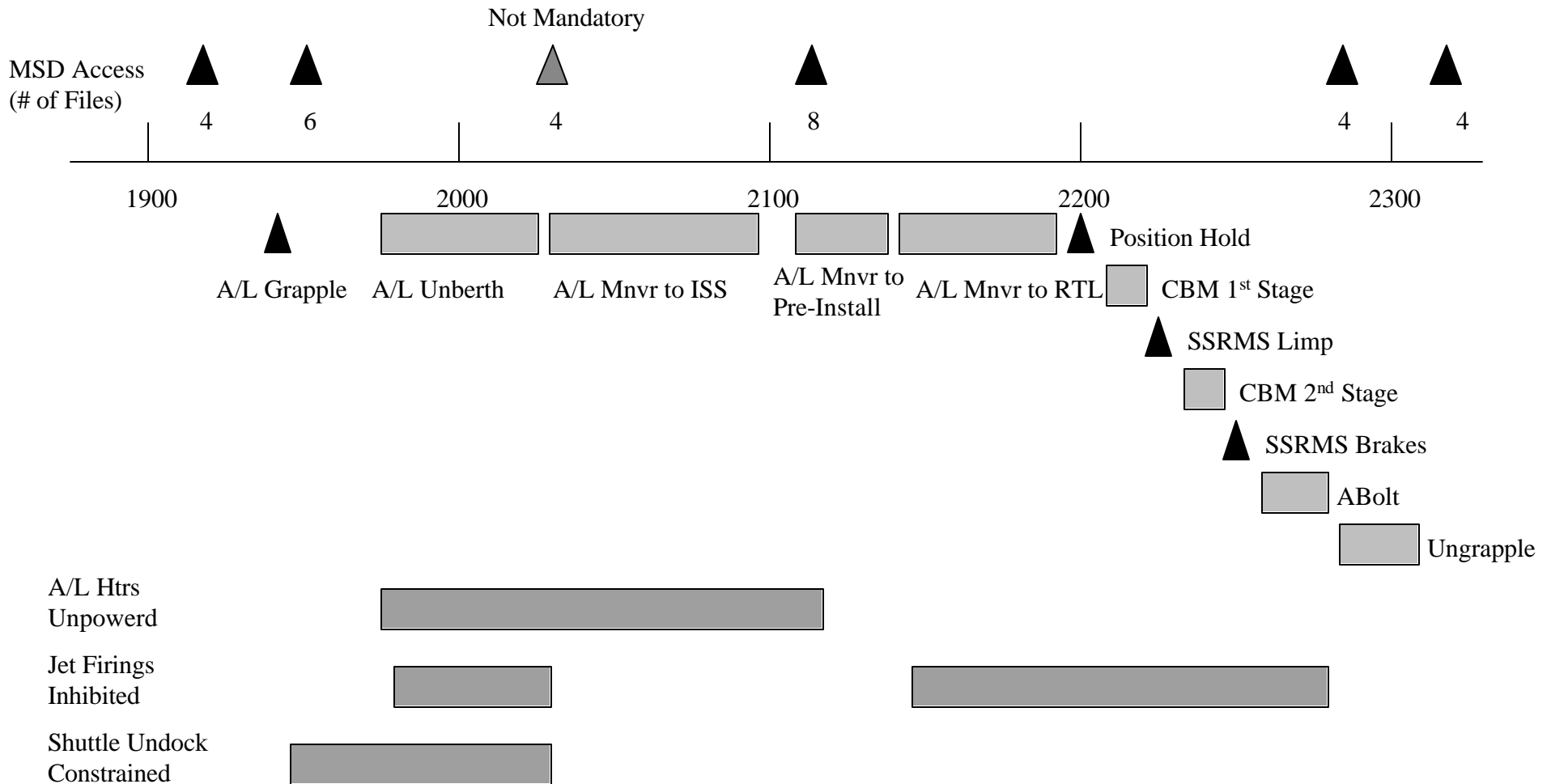
- SSRMS Operations
 - SSRMS used to move airlock and HPGT's from the shuttle PLB to the ISS. SRMS cannot reach airlock or HPGT's in the PLB.
 - Primary C&C must be available or the SSRMS safes itself
 - C&C MSD must be available to support loading of reference frames throughout trajectories
- Docking/Undocking
 - Required for Attitude Control System Moding
- A/L MDM Activation

Special Topic – C&DH and SSRMS Readiness Reduced Risk to C&C and MSD Failures

- Reviewed SSRMS operations/minimized dependence on MSD access
- Implemented operational constraints to minimize risk of C&C problems
- Implemented routine “maintenance” procedures to verify health of C&DH system
- Developed Contingency Response Table
- The SSRMS will be checked out between L-96 and L-72 hr and will remain operational until 7A robotic ops are complete.

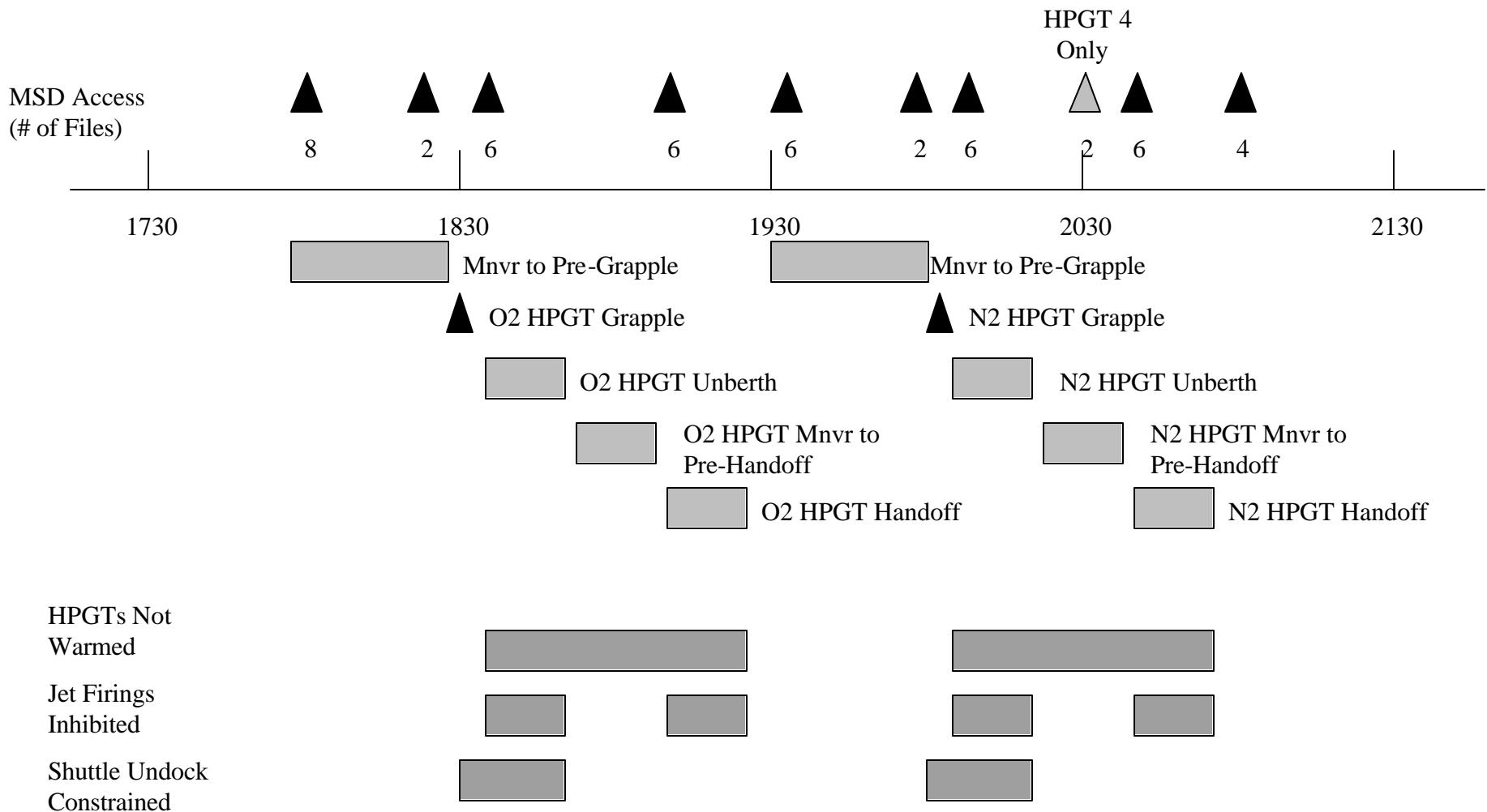
Special Topic – C&DH and SSRMS Readiness

Airlock Unberth/Install Summary



Special Topic – C&DH and SSRMS Readiness

HPGT Unberth/Handoff Summary



Special Topic – C&DH and SSRMS Readiness

Reduced Risk to SSRMS Failures


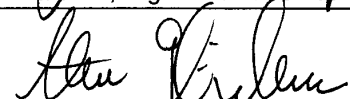
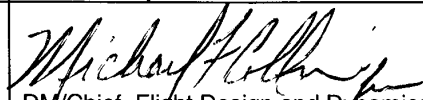
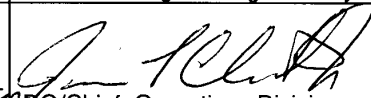

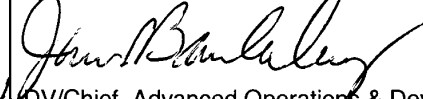
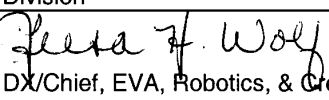
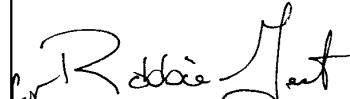
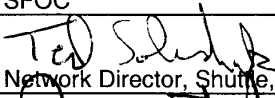

- SSRMS software patch in place to mask the “persistent” joint failure and tested on both strings.
- Exp-2 training
 - Crew tag-ups have already taken place to keep the crew in the loop on the general direction of SSRMS s/w, EVA backups, trajectory analyses, etc.
 - A Joint A/L installation dry-run has been completed on both strings, with more planned on both strings.
- SSRMS trajectories have been modified to optimize EVA backup capability.
 - SRMS reach to the SSRMS elbow and wrist joints will be preserved.
 - Single joint maneuvers have been maximized.
- EVA and SRMS HPGT installation have been assessed.
 - VR mass handling evaluations increased confidence in limited HPGT handling.
 - VR fam of SRMS configurations to support SSRMS joint drive and HPGT hand-off.
 - NBL quick look of HPGT manual translation paths and worksite orientation.

Special Topic – C&DH and SSRMS Readiness

Overall Operational Perspective


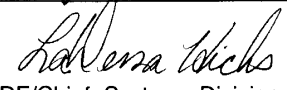
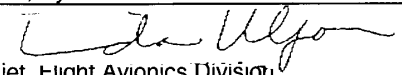

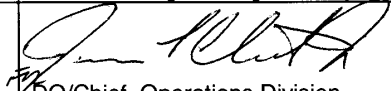


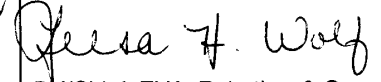
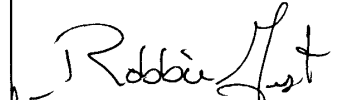

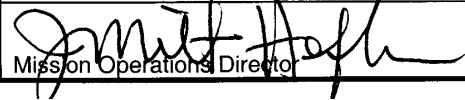
- Demonstrated required SSRMS functionality and interactions with the C&DH System
 - Five testing/training sessions were originally planned
 - 7 runs have been completed on the prime string, 5 on the redundant through 6/25
 - Runs planned every Tue and Thur through the L-96 hr checkout
- If the SSRMS auto-safes, cancel safing and continue on the active string if the failure clears.
- If the active string is not recoverable, switch to the redundant string and:
 - If outside 2 ft, continue to preinstall.
 - If inside 2 ft and not ready-to-latch, continue to the preinstall position, connect the external power jumper and assess the failures (this config is survivable indefinitely).
- For a fully failed SSRMS, EVA backup provides the following:
 - Joint A/L drive to the pre-install position, then connect the external power jumper.
 - HPGT drive to the nominal EVA hand-off position.
 - SRMS position HPGT 2 and 3 close to the nominal EVA hand-off position.

MISSION OPERATIONS DIRECTORATE
SHUTTLE CERTIFICATE OF FLIGHT READINESS (CoFR)
FLIGHT: STS-104/7A REQUIREMENTS

Critical Processors/Applications, Non-Crit Processors/Applications; Flight Rules: EMCC: Trng-MCC /POCC; FTP-New Operations; Anomaly-Proc; Ex/AI from Prior Reviews; CIL/Hazards; No Constraints; Level II Actions; Mission Requirements; Exception Resolution; CMD Proc; FPPP Requirements Met; Contractor Process Insight	 DA8/Chief, Flight Director Office
Crit Processors/Applications; Non-Crit Processors/Applications; FDF; EMCC; TRNG-MCC/POCC; LCC; FTP-New Ops; Flight Anomaly Resolution; Anomaly-Proc; Ex/AI from Prior Reviews; CIL/Hazards; No Constraints; Level II Actions; Mission Requirements; Engineering Drawings; CMD Proc; FPPP Requirements Met; Contractor Process Insight	 FOR DF/Chief, Systems Division
Crit Processors/Applications; Non-Crit Processors/Applications; FDF; EMCC; RECON-Flight S/W (MMU); TRNG-MCC/POCC; FTP-New Ops; Flight Anomaly Resolution; Anomaly-Proc; Ex/AI from Prior Reviews; No Constraints; Level II Actions; Mission Requirements; CMD Proc; FPPP Requirements Met; Contractor Process Insight	 DM/Chief, Flight Design and Dynamics Division
Crit Processors/Applications; Non-Crit Processors/Applications; FDF; FDF Manage; EMCC; PGSC; TRNG-MCC/POCC; FTP-New Ops; Flight Anomaly Resolution; Anomaly-Proc; Ex/AI from Prior Reviews; CIL/Hazards; No Constraints; Level II Actions; Mission Requirements; Engineering Drawings; CMD Proc; FPPP Requirements Met; Contractor Process Insight	 DO/Chief, Operations Division
EX/AI from Prior Reviews; No Constraints; Level II Actions; Mission Requirements; FPPP Requirements Met; Contractor Process Insight	 DT/Chief, Space Flight Training Division
FPPP Requirements Met; Contractor Process Insight	 ADV/Chief, Advanced Operations & Development Division
FAC-NBL; FAC-SVMF; FDF; TRNG-Crew Trng; TRNG-MCC/POCC; TRNG-EVA/MARS; LCC; FTP-New Ops; Flight Anomaly Resolution; Anomaly-Proc; Ex/AI from Prior Reviews; CIL/Hazards; No Constraints; Level II Actions; Mission Requirements; Engineering Drawings; CMD Proc; EVA Hardware Integration; Contractor Process Insight	 for DX/Chief, EVA, Robotics, & Crew Systems Operations Division
FAC-MCC; FAC-Network Interface; FAC-SMS; FAC-SPF; FAC-IPS ; Crit Processors/Applications; Non-Crit Processors/Applications; FD-Trajectory; FD-Consumables; FD-PDRS; FD-Analyst Cert; FD-CTF; FDF Manage; EMCC; RECON-STAR/MASTII/CD ROM Products; RECON-MCC; TRNG - Crew Trng; TRNG-MCC/POCC; TRNG-SMS; FTP-New Ops; Flight Anomaly Res; Anomaly-Proc; Ex/AI from Prior Reviews; CIL/Hazards; No Constraints; Level II Actions; Mission Requirements; Engineering Drawings; Exception Resolution; CMD Proc; FPPP Requirements Met	 Associate Program Manager, Flight Operations, SFOC
EMCC; NETWORK; Flight Anomaly Resolution; Anomaly-Proc; Ex/AI from Prior Reviews; No Constraints; Level II Actions; FPPP Requirements Met	 5/9/01 Network Director, Shuttle, GSFC
	 Mission Operations Director

MISSION OPERATIONS DIRECTORATE
ISS CERTIFICATE OF FLIGHT READINESS (CoFR)
FLIGHT/INCREMENT: STS-104/7A AND SUBSEQUENT INCREMENT OPERATIONS

ISS REQUIREMENTS

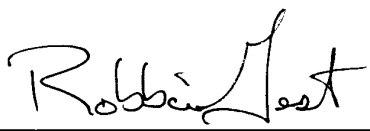
Critical Processors/Applications; Non-Crit Processors/Applications; Flight Rules; EMCC; Trng-MCC/POIC/POCC; JOP-New Operations; Anomaly-Proc; Ex/AI from Prior Reviews; CIL/Hazards; No Constraints; Program Actions; Mission Requirements; Exception Resolution; CMD Proc; Contractor Process Insight	 DA8/Chief, Flight Director Office
Crit Processors/Applications; Non-Crit Processors/Applications; ODF/SODF; EMCC; TRNG-MCC/POIC/POCC; LCC; JOP-New Ops; Flight Anomaly Resolution; Anomaly-Proc; Ex/AI from Prior Reviews; CIL/Hazards; No Constraints; Program Actions; Mission Requirements; CMD Proc; EVA Hdwr; Contractor Process Insight	 DF/Chief, Systems Division
EX/AI from Prior Reviews; No Constraints; Program Actions; Mission Requirements; Contractor Process Insight	 DL/Chief, Flight Avionics Division
Crit Processors/Applications; Non-Crit Processors/Applications; TRNG-MCC/POIC/POCC; JOP-New Ops; Flight Anomaly Resolution; Anomaly-Proc; Ex/AI from Prior Reviews; No Constraints; Program Actions; Mission Requirements; CMD Proc; FD-Flight Mechanics, FD-Analyst Cert. FD-CTF	 DM/Chief, Flight Design and Dynamics Division
Crit Processors/Applications; Non-Crit Processors/Applications; ODF/SODF; ODF/SODF Manage; EMCC; TRNG-MCC/POIC/POCC; JOP-New Ops; Flight Anomaly Resolution; Anomaly-Proc; Ex/AI from Prior Reviews; CIL/Hazards; No Constraints; Program Actions; Mission Requirements; CMD Proc; Contractor Process Insight	 DO/Chief, Operations Division
EX/AI from Prior Reviews; No Constraints; Program Actions; Mission Requirements; Contractor Process Insight	 DT/Chief, Space Flight Training Division
The SSTF maintains a training load consistent with the last training environment for the increments in progress which can, on demand be loaded and updated to the required onboard configuration for any necessary procedure development; contractor process insight.	 DV/Chief, Advanced Operations & Development Division
FAC-NBL; FAC-SVMF; FDF; TRNG-Crew Trng; TRNG-MCC/POCC; TRNG-EVA/MARS; LCC; FTP-New Ops; Flight Anomaly Resolution; Anomaly-Proc; Ex/AI from Prior Reviews; CIL/Hazards; No Constraints; Level II Actions; Mission Requirements; Engineering Drawings; CMD Proc; EVA Hardware Integration; Contractor Process Insight	 DX/Chief, EVA, Robotics, & Crew Systems Operations Division
FAC-MCC; FAC-Network Interface; FAC-IPS; Crit Processors/Applications; Non-Crit Processors/Applications; ODF/SODF Fabrication; Flight Anomaly Res; Anomaly-Proc; Ex/AI from Prior Reviews; No Constraints; Program Actions; Mission Requirements; Exception Resolution; CMD Proc	 Associate Program Manager, Flight Operations, SFOC
NETWORK; Flight Anomaly Resolution; Anomaly-Proc; Ex/AI from Prior Reviews; No Constraints; Program Actions	 Network Director, SSP-ISSP, GSFC
	 Mission Operations Director

STS-104/7A FLIGHT READINESS STATEMENT



THE MISSION OPERATIONS FLIGHT PREPARATION PROCESS PLAN DOCUMENTED IN NSTS 08117, REQUIREMENTS AND PROCEDURES FOR CERTIFICATION OF FLIGHT READINESS, HAVE BEEN SATISFIED. REQUIRED PRODUCTS AND OTHER RESPONSIBILITIES FOR MISSION OPERATIONS (NSTS 08117, SECTION 8, PARAGRAPH 8.5.7) HAVE BEEN OR WILL BE PRODUCED OR COMPLETED. ALL AREAS ARE READY. MISSION OPERATIONS IS PREPARED TO SIGN THE CERTIFICATE OF FLIGHT READINESS FOR STS-104/7A.

for 
J. W. BANTLE
MISSION OPERATIONS DIRECTOR


C. L. VERMILYEA
VICE PRESIDENT AND ASSOCIATE
PROGRAM MANAGER, FLIGHT
OPERATIONS, SPACE FLIGHT OPERATIONS
CONTRACT